federal register

Friday
December 23, 1988

Part II

Environmental Protection Agency

40 CFR Part 85

Motor Vehicle Emissions Control System Performance Warranty Short Tests; Alternative Test Procedures; Notice of Proposed Rulemaking

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 85

[AMS FRL-3455-2]

Motor Vehicle Emissions Control System Performance Warranty Short Tests; Alternative Test Procedures

AGENCY: Environmental Protection Agency.

ACTION: Notice of proposed rulemaking.

SUMMARY: This notice proposes an alternative loaded-mode test procedure for inclusion in the Emissions Control System Performance Warranty Short Tests of 40 CFR Part 85, Subpart W. The alternative establishes test and dynamometer specifications that could be substituted for those contained in the present regulations for the loaded-mode portion of the Loaded Test. The State of Arizona plans to use the proposed test procedure in its emissions inspection and maintenance program. Final approval would bring Arizona's program into direct compliance with the emission control performance warranty provisions, allowing owners of vehicles which fail in the loaded mode to claim the intended warranty coverage. The proposed revision should be at least equal to the present Loaded Test in limiting errors of commission, or false failures, and retains reasonable correlation with the Federal Test Procedure.

DATES: No public hearing will be held on this proposal, unless specifically requested, for the reasons described in Section IV of today's notice. In the event that no hearing is requested, written comments must be submitted by January 23, 1989.

Any request for a public hearing must be received by EPA in writing at the address listed below for further information no later than January 9, 1989. If held, the hearing will be scheduled approximately 30 days after publication of this proposal. The exact date will be announced in a subsequent Federal Register notice. All written comments must then be submitted 30 days after the date of the public hearing.

ADDRESSES: Docket A-88-32 containing material relevant to this action is located at: Central Docket Section, South Conference Center, Room 4, U.S. EPA, 401 M Street, SW., Washington, DC 20460. Interested persons may inspect the docket between 8:00 am and 4:00 pm, on weekdays. The EPA may charge a reasonable fee for copying. All written comments should be submitted (in duplicate if possible) to: Central Docket Section, Docket A-88-32, U.S. EPA, 401 M Street, SW., Washington, DC 20460.

Any public hearing that may be scheduled in conjunction with this proposed rulemaking will be held at: Conference Room, Motor Vehicle Emissions Laboratory, U.S. EPA, 2565 Plymouth Road, Ann Arbor, Michigan.

FOR FURTHER INFORMATION CONTACT: Richard Wilcox, Emission Control Technology Division, Office of Mobile Sources, Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, MI 48105, Telephone: (313) 668-4390.

SUPPLEMENTARY INFORMATION:

I. Background

A. Performance Warranty

Section 207(b) of the Clean Air Act (the Act) establishes a mechanism to provide emission control performance warranty coverage for all motor vehicle classes. The statute requires the establishment of short test procedures to be used for determining in-use compliance of vehicles with Federal emission standards, if the Administrator determines that three conditions have been met: (1) The short test methods and procedures are "available" (i.e., that the necessary equipment may be readily obtained and the procedure is reasonably expected to serve its function); (2) the procedures are consistent with good engineering practices; and (3) the results are reasonably capable of being correlated with the Federal Test Procedure (FTP) used to certify vehicles for initial sale. If such test procedures are established, the Act then requires promulgation of regulations to implement the performance warranty for vehicles that fail an approved test if certain conditions are met.

On May 22, 1980, EPA published the necessary finding in the Federal Register establishing three "short test" procedures (45 FR 34802). These short tests are intended to be used by states as part of their vehicle inspection and maintenance (I/M) programs. On the same date, EPA also promulgated emission performance warranty regulations (45 FR 34829). These warranty regulations cover 1981 and newer model year light-duty vehicles and light-duty trucks whose owners may be subject to any sanction as a result of failing to meet emission standards, as determined by an approved short test. The warranty covers light-duty motor vehicles up to five years or 50,000 miles, if the vehicles were maintained and operated in accordance with the manufacturer's instructions. The test procedures and performance warranty regulations are contained in 40 CFR Part 85 Subparts V and W.

One June 12, 1984, EPA amended the warranty regulations (49 FR 24320). The amendments included a provision allowing states to request alternative short test standards or procedures.

B. Loaded Test

Among the short tests established in 1980 was the Loaded Test (§ 85.2214). The test consists of both loaded-mode and idle-mode operation. Conducting the emissions test under load is designed to detect in-use malfunctions that are not apparent during idle-neutral testing. To produce this load the vehicle is operated on a dynamometer. The current test protocol begins with a 30 mile per hour (mph) cruise at a dynamometer load of 9.0 horsepower (hp) for the loaded mode, followed by an idle-neutral mode. The loaded test procedure permits exhaust measurements to be taken from either the loaded mode, the idle mode, or both. If measurements are not taken during the 30 mph cruise, that mode is treated as a preconditioning step prior to the idle-mode measurement.

The dynamometer specifications and calibration procedures of the loaded-mode test were based largely on the variable-curve dynamometers used for certification testing. Thus, the 30-mph/9.0-hp test point was originally to be achieved by adjusting the power absorption unit, or PAU, of the variable-curve dynamometer to provide the appropriate speed/load response curve. A daily check (required by § 85.2217(c) of the existing regulation) was designed to ensure that the variable load PAU was properly adjusted, as indicated by the settings of the road load controller or road load indicator.

A few I/M programs have installed the equipment needed to conduct loaded testing. However, the dynamometers are not the variable-curve units anticipated by EPA at the time the warranty regulations were originally promulgated. Rather, economic considerations resulted in the installation of single-curve dynamometers, which were all designed and built by the Clayton Manufacturing Company. Unlike a variable-curve dynamometer, a single-curve unit uses a PAU with a fixed speed/load response curve. This relationship, which is roughly cubic for the dynamometers customarily employed in automotive applications, is determined at the time the PAU is manufactured.

The PAUs in the Clayton single-curve dynamometers were made to generate a road load of 30 hp at 50 mph. This

specification was associated with the originally proposed, but never promulgated, short tests. At the nominal speed of 30 mph called for in the current performance warranty regulations, such a dynamometer generates a corresponding road load of 7.0 hp.

The obvious difference in dynamometer specifications between the variable-curve and existing single-curve dynamometers means that I/M programs employing these latter units are in technical noncompliance with the approved Loaded Test. This is not presently a problem with regard to performance warranty coverage, primarily because the three states using loaded test procedures perform the cruise mode only as a preconditioning step prior to conducting an official idle test. That is, any measurements taken during the cruise condition are not used to pass or fail the vehicle. These programs are, therefore, in compliance with the approved Idle Test. However, this situation will change in the future as described below.

C. Loaded-Mode Testing in Arizona

The present Arizona I/M program passes or fails vehicles based on their exhaust emissions during idle operation only. On August 10, 1988, EPA approved revisions to the carbon monoxide (CO) State Implementation Plan (SIP) for that state. The SIP contains a statutory commitment requiring 1981 and newer vehicles to pass the I/M test during both idle-mode and loaded-mode operation. The loaded-mode testing is scheduled to begin January 1, 1989.

Arizona presently has the equipment necessary to perform loaded testing. In fact, it is one of the states employing loaded-mode operation in the I/M program for preconditioning some vehicles prior to the idle test. The State's equipment consists of the single-curve Clayton dynamometers manufactured to the 30 hp at 50 mph specification. The Arizona Department of Environmental Quality (ADEQ) has informed EPA of its intention to use the existing dynamometers for loaded-mode testing, so that expensive and time consuming equipment changes or modifications can be avoided. As already mentioned, this makes the program technically out of compliance with the approved Loaded Test, leaving affected consumers vulnerable to losing warranty coverage.

The Agency believes that the lack of explicit warranty coverage in this instance would be contrary to the intent of Congress as expressed in section 207(b) of the Act. Also, as discussed in more detail later, there is no technical reason why the short test criteria can not be met with more economical, single-curve dynamometers rather than variable-curve units, or with test specifications other than those now contained in the regulations. Therefore, EPA believes that programs with single-curve dynamometers, such as Arizona, should be afforded the opportunity of complying with EPA requirements without expensive modifications to the equipment and procedures. Similarly, EPA believes that any I/M programs wishing to change the test procedure from loaded preconditioning to a loaded-mode pass/fail, or wishing to add a cruise mode to a simple idle test program, should have a lower cost method of doing so. For these reasons, EPA believes that revising the loaded test requirements is desirable.

II. Contents of the Proposal

A. Test Procedure Revisions

The Agency is proposing to revise the loaded-mode portion of the Loaded Test to accommodate single-curve dynamometers in addition to the more sophisticated variable-curve units. The present loaded-mode test procedure requires the emissions measurement to be taken while the vehicle is operated on the dynamometer at 29–31 mph (§ 85.2216). This results in a nominal loading of about 8.1 to 9.9 hp during the test. Within the range of possible revisions, EPA has selected two alternatives for discussion in this proposal. The alternative procedures are based on those being considered by ADEQ for incorporation into the Arizona I/M program.

The simplest alternative is to change the dynamometer specification to require a lighter load of 7.0 ± 1.0 hp at 30 mph roll speed. Arizona has also indicated a preference for a slightly slower speed range of 28–30 mph during the test. Using these values results in a nominal loading of about 5.7 to 7.0 hp. This is a somewhat lighter load condition than the current testing requirements.

A more detailed revision involves establishing a schedule of speed/load test conditions based on a simple indicator of engine size and power rating. The speed/load schedule is identical to that currently used in the Wisconsin I/M program for preconditioning vehicles on Clayton single-curve dynamometers. The schedule is shown in the following Table 1.

TABLE 1—PROPOSED THREE-SPEED DYNAMOMETER TEST SCHEDULE

Engine size (cylinders)	Roll speed MPH	Nominal loading (hp)
4 or less	22 to 25	2.8 to 4.1.
5 to 6	29 to 32	6.4 to 8.4.
7 or more	32 to 35	8.4 to 10.8.

ADEQ has indicated a preference for the latter revision because of concerns that many of today's smaller vehicles may be tested at inappropriately high loads, thereby increasing the number of errors of commission, or false failures.

As already noted, the principal guidance for evaluating the approvability of any alternative short test are the three criteria contained in section 207(b) of the Act. Basically, the procedure must be reasonably available, follow good engineering practice, and reasonably correlate with the FTP. Regarding the first two criteria, both alternatives described above represent a relatively minor change to the test protocol and equipment required by the existing Loaded Test. Therefore, the alternatives obviously are available and continue to be consistent with good engineering practice.

Regarding the last criterion, EPA is in general agreement with ADEQ that testing at lighter loads, especially under the second alternative, could reduce the number of errors of commission for vehicles with smaller engines. Some manufacturers have previously raised this issue informally, claiming that EPA's 9.0 hp load is too high for representative testing of smaller sized and lower powered vehicles. (Too high a loading may cause vehicles to enter a rarely used operational mode in which design fuel metering and ignition timing calibrations favor high emissions.) Of the two alternatives described above, a reduction in false failures would appear more likely with the variable speed/load procedure because of its significantly lighter loading for smaller engines. Reducing errors of commission is generally consistent with increasing correlation with the FTP.

Offsetting this potential benefit is the possibility that testing at lighter loads may allow some marginally performing vehicles to pass the loaded-mode test, which would otherwise fail. This phenomenon is referred to as an error of omission, and reduces correlation with the FTP. There is no engineering reason to expect such behavior, however, for the small differences in load conditions associated with changing from a dynamometer specification of 9.0 to 7.0 hp, i.e., the first alternative. There may

BEST COPY AVAILABLE

be some risk of this happening at the greater differences associated with the second alternative. Nevertheless, EPA believes that the load specified for each engine size is adequate, so that the potential for errors of omission, even under the second alternative, should not be significantly different than that of the existing loaded-mode test. Further, to the extent this might occur, its effect on correlation with the FTP would tend to be neutralized by the benefit in reducing errors of commission. Therefore, on balance, both of the alternative loaded-mode revisions appear consistent with the Act's criteria for approvability.

The Agency presently believes that the greater potential for reducing errors of commission, which is associated with the three-speed procedure (the second alternative), justifies the small potential increase in the risk of inappropriately passing marginally performing vehicles. Therefore, EPA is specifically proposing to supplement the existing loaded-mode test conditions and dynamometer specifications on an optional basis with those described in the second alternative. These specifications are compatible with existing single-curve dynamometers and variable-curve units. Comments are specifically requested on the representativeness of the speed/load points for each engine size, and the effects of this procedure on errors of commission and omission relative to the existing 9.0 hp test requirement and the alternative 7.0 hp requirement. Comments are also requested on the desirability of promulgating the 7.0 hp alternative rather than the three-speed alternative.

B. Quality Control Procedure Revisions

This action also proposes a number of additions or changes to the dynamometer calibration procedures to improve quality control during loaded-mode testing. First, the Loaded Test (§ 85.2214(b)) would be amended to require a check of variable-curve dynamometers prior to each test for the proper settings on the road load indicator or automatic road-load controller. This requirement would represent a minimal time demand, while preventing false tests in programs that employ modes or test conditions in addition to those specified in the performance warranty regulations. The new check would replace the daily check of § 85.2217(c), which would be deleted. Because the power absorption unit is not adjustable in a single-curve dynamometer, no such check is necessary in programs using single-curve units.

Second, a proposed minor revision to the wording of § 85.2216(b) would tighten the accuracy of the dynamometer roll speed measurement to 1.0 mph, and apply that limit over the range of possible true roll speeds that could be encountered during actual testing.

Third, and finally, the calibrations and adjustments section (§ 85.2217) would be amended to reflect EPA's concern that the speed and load accuracy of both single- and variable-curve dynamometers be verified at regular intervals. A monthly check of the roll speed indicator is proposed to be added to § 85.2217(e). A proposed biannual check (§ 85.2217(f)) would require verification of the road load response of variable-curve dynamometers and the PAU load of single-curve dynamometers.

Comments on the above proposals, especially the proposed biannual check, are solicited. The biannual requirement presumes use of a vehicle coast-down procedure or the equivalent to verify performance of variable-curve dynamometers. Because such a procedure has minimal application to single-curve dynamometers, an assessment of PAU torque is considered sufficient for these instruments. Although not currently contained in EPA regulations, this requirement is consistent with the manufacturer's recommended procedures.

III. Environmental and Economic Effects

The proposed revision to the loaded-mode procedure should have no significant effect on the emission benefits of the Loaded Test. Testing at lighter dynamometer loadings might result in passing some marginally performing vehicles than might otherwise occur. However, to the extent this may occur, EPA believes the number of these vehicles would be very limited. Further, not all of the marginally performing vehicles that incorrectly pass when tested in the loaded mode will also pass in the idle mode, so at least some of these vehicles will fail the full I/M test. Therefore, the overall emission benefits of the Loaded Test should not be significantly affected.

The proposed revision will allow existing dynamometers to be in technical compliance with the approved short test regulations and similar economical equipment to be used by other programs desiring to implement loaded-mode testing in the future. There should be no incremental economic effect with regard to consumers seeking performance warranty coverage, except to the extent that fewer errors of commission will increase the economic efficiency of the regulation. Therefore, EPA does not anticipate any adverse economic effects to occur as a result of this proposal.

IV. Public Participation

A. Comments and the Public Docket

In all rulemakings, EPA desires full public participation in arriving at final decisions. The Agency solicits comments on all aspects of today's proposal from all interested parties. Wherever applicable, full supporting data and detailed analyses should also be submitted to allow EPA to make maximum use of the comments. Commenters are especially encouraged to provide specific suggestions for changes to any aspects of the proposal that they believe need to be modified or improved. All comments should be directed to the EPA Central Docket Section, Docket No. A–88–32 (see "**ADDRESSEES**").

B. Public Hearing

This proposed action consists of relatively minor technical revisions to the existing Loaded Test. The modifications do not alter the intent or scope of the original rulemaking. No adverse economic effects are anticipated and the overall environmental effect of the changes will not be significantly different than that otherwise occurring under the present requirement. For these reasons, the Agency believes that adequate public review and comment is afforded by the opportunity for written comment on this proposal, without the need for a public hearing. Therefore, EPA does not intend to schedule a public hearing in conjunction with this action unless it is specifically requested by a commenter on or before January 9, 1989. (See "**DATES**" for further information.)

V. Administrative Designation and Regulatory Analysis

Under Executive Order 12291, EPA must judge whether a regulation is "major." This proposed regulation does not constitute a major rule because its total annual cost is projected to be less than $100 million; it will not increase costs for consumers, the industry or State or local governments; and it involves no adverse effects on competition, productivity, investment, employment, or innovation. Therefore, a Draft Regulatory Impact Analysis is not required.

This rulemaking action has been sent to the Office of Management and Budget (OMB) for review pursuant to Executive Order 12291. Any written comments from OMB and any written EPA response thereto will be placed in the public docket for this rulemaking.

BEST COPY AVAILABLE

VI. Impact on Small Entities

Section 605 of the Regulatory Flexibility Act requires that the Administrator certify that regulations do not have a significant impact on a substantial number of small entities. This proposed action modifies an existing regulation in a manner that potentially reduces the economic effect of the requirement. Also, because the revised procedure is no more stringent than the existing emission performance warranty short test, there should be no additional effect on entities manufacturing vehicles or aftermarket parts. Accordingly, I certify that this proposed regulation will not have a significant adverse effect on a substantial number of small entities.

VII. Reporting and Recordkeeping Requirements

This proposal does not contain any information collection requirements subject to OMB review under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

List of Subjects in 40 CFR Part 85

Imports, Labeling, Motor vehicle pollution, Reporting and recordkeeping requirements, Research warranties.

Authority: 42 U.S.C. 7541 and 7601.

Dated: December 14, 1988.

Lee M. Thomas,

Administrator.

For the reasons set forth in the preamble, Part 85 of 40 CFR is proposed to be amended as follows:

PART 85—[AMENDED]

1. The authority citation for Part 85 will continue to read as follows:

Authority: Sections 202, 203, 205, 206, 207, 208, 212, and 301(*a*) of the Clean Air Act as amended; 42 U.S.C. 7521, 7522, 7524, 7525, 7541, 7542, 7546, and 7601(a), unless otherwise noted.

2. Section 85.2214 is amended by revising paragraphs (b)(1) and (b)(5) to read as follows:

§ 85.2214 Loaded test.

* * * * *

(b) *Test sequence.* (1) The dynamometer and analyzers shall be warmed up, in stabilized operating condition, and adjusted and/or calibrated according to the procedures of § 85.2217. Prior to each test, variable-curve dynamometers shall be checked for proper setting of the road-load indicator or road-load controller.

(2) * * *

(3) * * *

(4) * * *

(5) Exhaust HC and CO shall be measured while the vehicle is operated at the indicated roll speed specified in this paragraph. The test shall be conducted with the vehicle's gear selector in drive for automatic transmissions and in second (or third if more appropriate) for manual transmissions. The exhaust gas concentrations shall be recorded after stabilized readings are obtained or at the end of 30 seconds, whichever occurs first. This process shall be repeated as necessary for multiple exhaust pipes, unless hardware which is capable of simultaneously sampling vehicles with multiple tailpipes is used. Neither multiple readings nor simultaneous sampling hardware is necessary for exhaust systems in which the exhaust pipes originate from a common point.

(i) *Roll Speed Option A.* The vehicle shall be operated according to the following schedule:

Engine size (cylinders)	Roll speed MPH
4 or less	22–25
5 to 6	29–32
7 or more	32–35

(ii) *Roll Speed Option B.* The vehicle shall be operated at 30 ± 1.0 mph roll speed.

* * * * *

3. Section 85.2216 is revised to read as follows:

§ 85.2216 Loaded test dynamometer specification.

(a) The loaded test dynamometer shall produce one of the following optional road loads.

(1) *Road Load Option A.* A load of 7.0 ± 1.0 hp at 30 mph true roll speed.

(2) *Road Load Option B.* A load of 9.0 ± 1.0 hp at 30 mph true roll speed.

(b) Road Load Option B shall be used only in conjunction with Roll Speed Option B specified in § 85.2214(b)(5)(ii).

(c) The speed/load response curve of the loaded test dynamometer shall follow a cubic relationship in the range of 22–35 mph.

(d) Speed shall be measured from the dynamometer roll(s) with an accuracy of at least 1.0 mph over the range of 22.0 mph to 35.0 mph true roll speed.

4. Section 85.2217 is amended by revising paragraph (a), reserving paragraph (c), redesignating paragraph (e) as (g), and adding new paragraphs (e) and (f) as follows:

§ 85.2217 Calibrations, adjustments.

(a) Equipment shall be calibrated, adjusted, and maintained in accordance with the instructions in this subpart. In cases where these regulations are silent, calibrations, adjustments and maintenance shall be performed in accordance with the equipment manufacturers' instructions.

(b) * * *

(c) (Reserved)

(d) * * *

(e) *Monthly check.* Within one month of each loaded test, the accuracy of the roll speed indicator shall be verified.

(f) *Biannual check.* Within six months of each loaded test, the road-load response of the variable-curve dynamometer or the power absorption unit torque of the single-curve dynamometer shall be determined at a speed within the range specified in § 85.2216(b). The load factor shall be calculated and adjusted for operation at 30 mph true roll speed according to the response curves for the particular dynamometer, and conformance with the limits defined by § 85.2216(a) shall be verified.

[FR Doc. 88–29261 Filed 12–22–88; 8:45 am]

BILLING CODE 6560–50–M